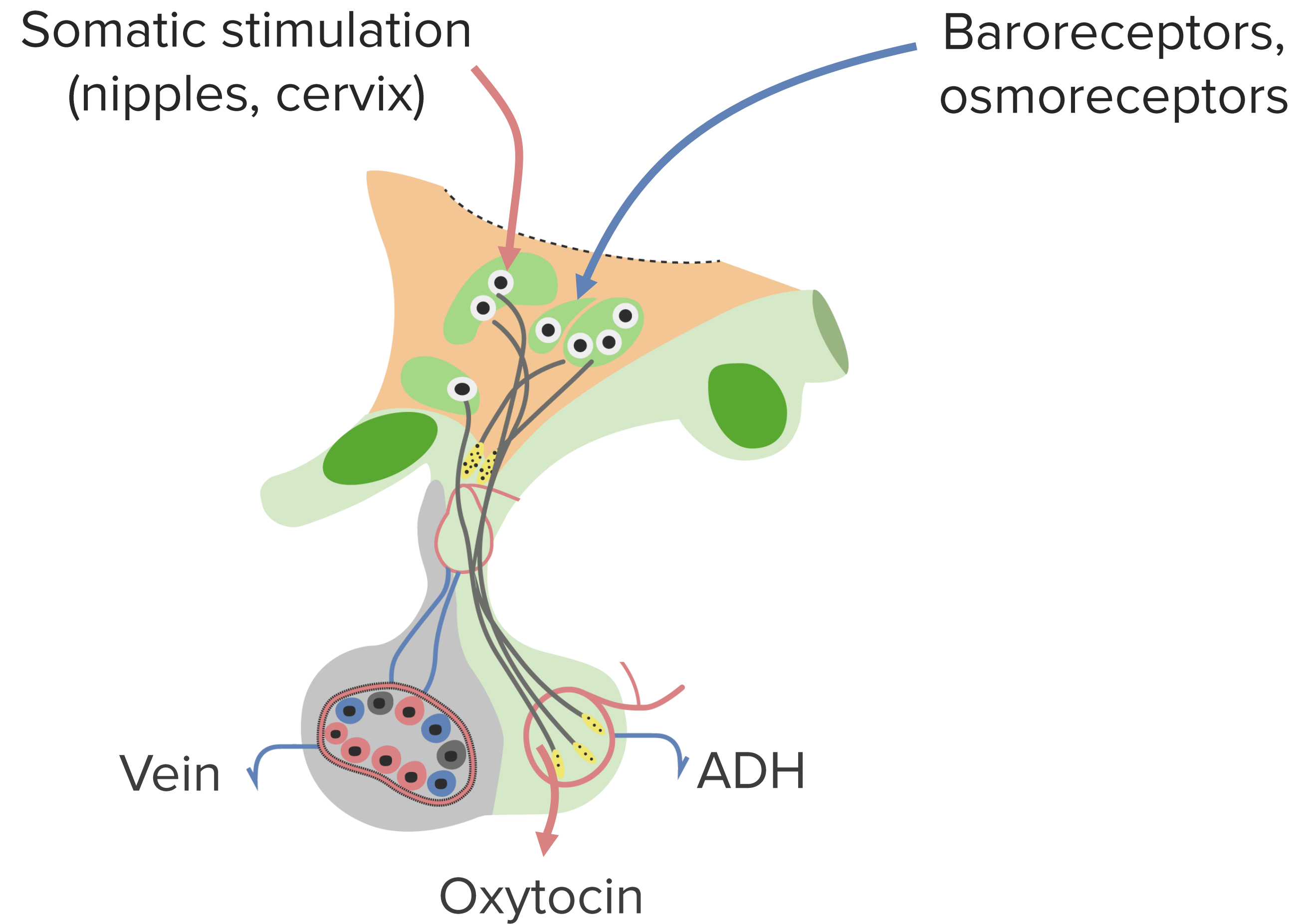




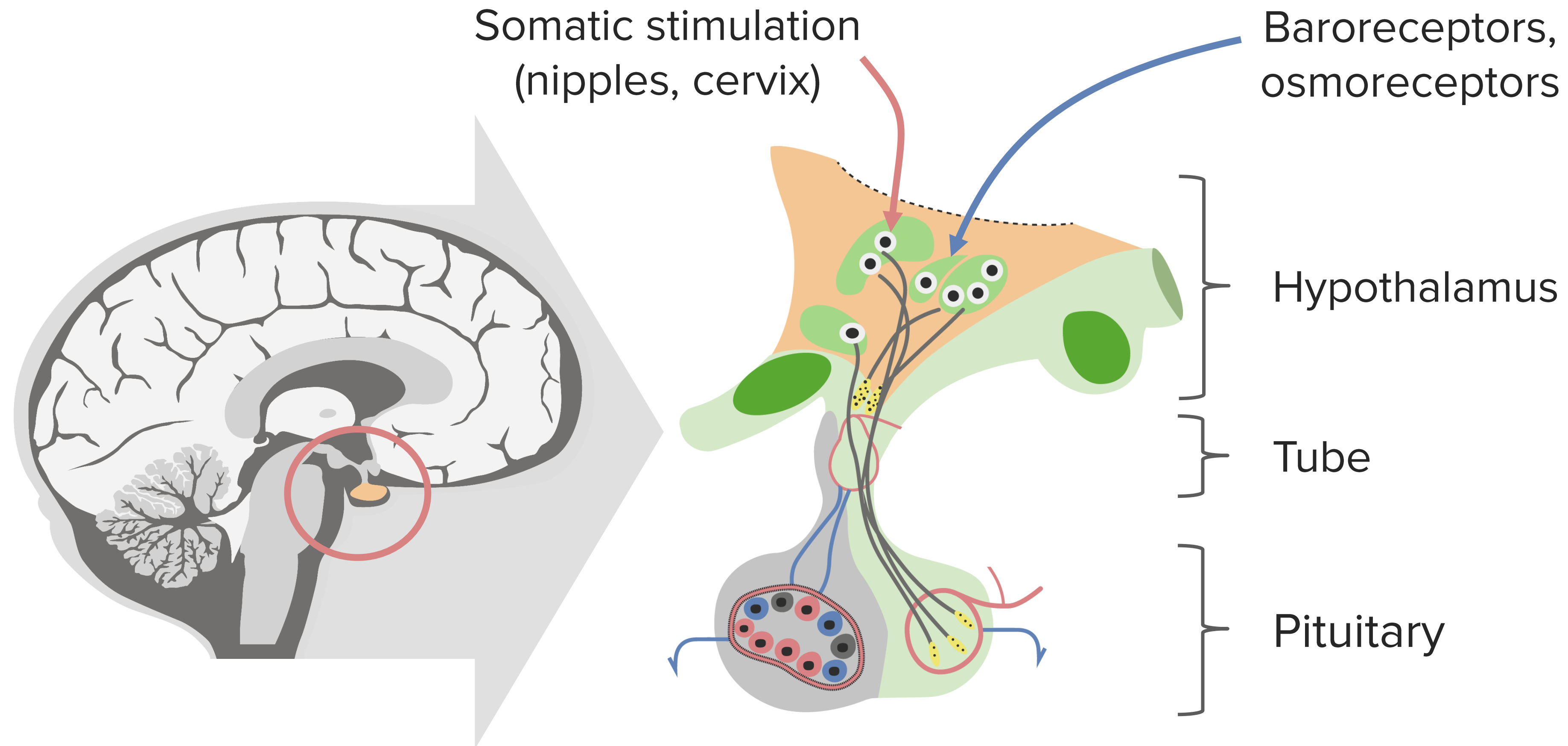
Endocrine Introduction

With Kartik Rangaraj, MD

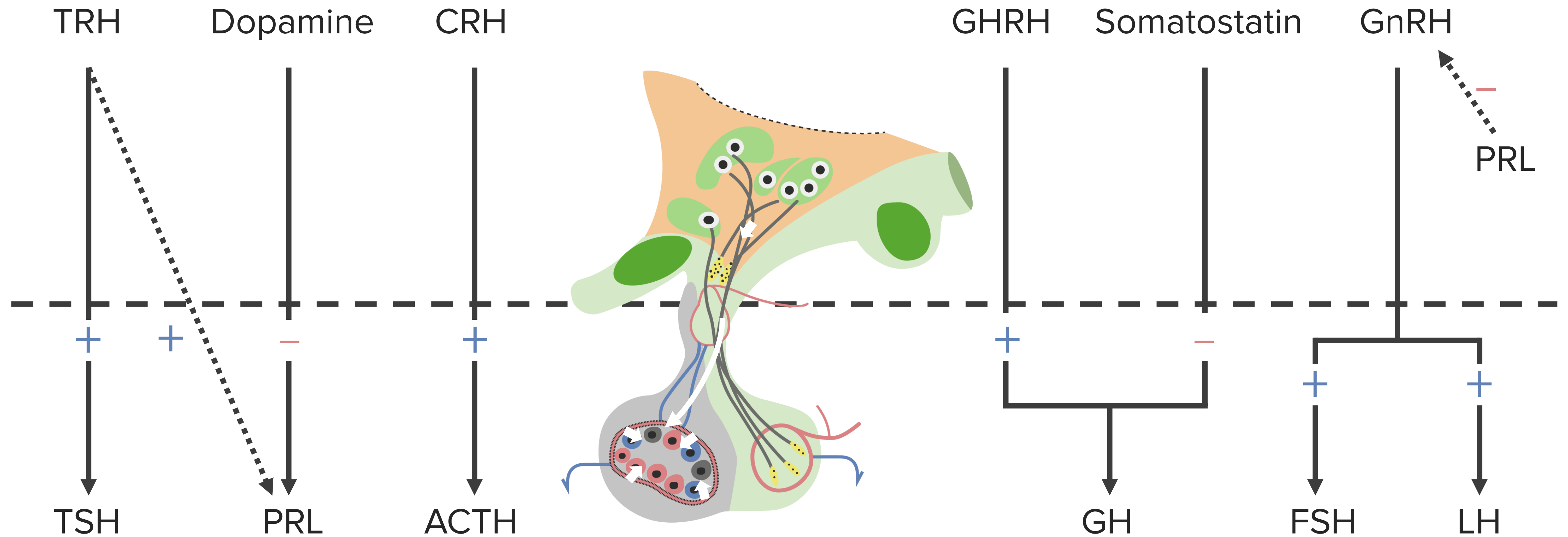
Pituitary Hormones



Pituitary Hormones



Pituitary Hormones



Cell Surface Receptors: Downstream Mechanisms

Tyrosine Kinase	G _s (↑cAMP)	G _i (↓cAMP)	G _q (↑IP ₃ , DAG)
• Insulin • Growth factors • IGF-1 • PDGF • FGF	• ACTH • TSH • FSH • LH • ADH via V₂-R • PTH • Glucagon Anti-pituitary hormones	• Somatostatin • ACH (M₂ M₄)	• Oxytocin • ADH via V₁-R • TRH • GnRH • ACH (M₁ M₃ M₅) • Gastrin

Steroid Hormone Receptors

Steroid hormone receptors are intracellular and may be in the cytoplasm or nucleus prior to hormone binding.

Predominantly cytoplasmic

- Glucocorticoid receptor
- Mineralocorticoid receptor
- Androgen receptor

Predominantly nuclear

- Estrogen receptor
- Thyroid hormone receptor
- Vitamin D receptor
- Retinoic acid receptor

Hormone Binding Proteins

- Binding proteins accompany hormones to their target receptors.
- They can have important regulatory roles; for example, TBG (esp. in pregnancy).

Binding protein		Hormone
SHBG	→	Estrogen, Testosterone
CBG	→	Cortisol
Neurophysins	→	Vasopressin, Oxytocin
TBG	→	Thyroid hormone
IGFBP	→	Insulin-like growth factors
VDBP	→	Calcitriol

Abbreviations

SHBG = sex hormone binding globulin
CBG = cortisol binding globulin
TBG = thyroid binding globulin
IGFBP = insulin-like growth factor binding protein
VDBP = Vitamin D binding protein

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